

REMARKS

Claims 3-19 and 22-24 are now pending in the application. Claims 1, 2 and 21 have been cancelled. Claims 3, 14 and 17 have been amended. Claim 24 is new. No new matter has been added as the amendments are supported by the specification, claims, and drawings as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejection in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claims 3 and 14 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. This rejection is respectfully traversed. Applicant has amended claims 3 and 14 to address the rejection. Therefore, reconsideration and withdrawal of this rejection are respectfully requested.

REJECTION UNDER 35 U.S.C. § 102

Claim 14 is rejected under 35 U.S.C. § 102(e) as being anticipated by Lundby (US 6,856,604). This rejection is respectfully traversed.

Claim 14 recites, among other things, "the cells of the broadcast service hierarchy utilize the same downlink special scrambling code for transmitting the real-time broadcast service". As to the cells of the original service hierarchy, each cell has its scrambling code for transmitting original service within the cell. See Fig.5. That is to

say, each cell in the mobile communication system is set two scrambling codes. See page 10, line 30.

Lundby at best discloses the base station within a cell “scrambles the encoded multi-cast data as necessary with a scrambling code that is known by all subscribers.” Lundby, col. 6, lines 45-47. It does not disclose all the cells of the broadcast service hierarchy utilize a same downlink special scrambling code for transmitting the broadcast service, and each cell in the mobile communication system is set two scrambling codes.

Claim 14 recites, among other things, “the signals of the real-time broadcast service transmitted in the cells of the broadcast service hierarchy are the same”.

Lundby at best discloses “scrambling the multi-cast data with a scrambling code that is known by all the subscribers.” Lundby, col. 6, lines 45-47. It does not disclose broadcast service data transmitted in all the cells of the broadcast service hierarchy are the same.

Claim 14 recites, among other things, “the radio access network has an original service hierarchy” and “adding a broadcast service hierarchy into the radio access network”. In other words, broadcast service hierarchy and original service hierarchy are independent. See page 3, lines 7-19. Hence, the transmission time of the broadcast service and the transmission time of the original service are independent of each other.

Lundby at best discloses that “the same transmissions are sent to all remote stations in the range of the base station,” Lundby, col. 5, lines 10-11, that “[a] scheduling element in a base station determines the channel quality feedback indicators from M subscribers to a multi-cast service,” Lundby, col. 6, lines 24-26, and “the

scheduling element selects an optimal time for transmitting the multi-cast ... the optimal time is selected by determining when the subscriber in the worst location has good channel conditions," Lundby, col. 6, lines 31-35. Applicant notes that Lundby discloses selecting a timing within a cell for subscribers in the range of the base station of the cell, and scrambling the multi-cast data with a scrambling code that is known by all the subscribers. See Lundby, col. 6, lines 45-47. The timing for transmitting the broadcast service is among all the times applicable for transmitting the original service such as voice traffic and data traffic and the broadcast service within the cell. That is to say, in Lundby, the transmission time of the broadcast service and the original service should be scheduled in coordination.

In view of the foregoing, Applicant submits that claim 14 and its dependent claims 15-20 and 23-24 define over the art cited by the Examiner.

REJECTION UNDER 35 U.S.C. § 103

Claim 3 and 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Aaltonen (US 7,103,311) in view of Nakagawa (US 6,256,508). Claims 5, 7 and 9-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Aaltonen and Nakagawa, and further in view of Leung 653 (US Pub 2003/0087653). Claims 4, 8 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Aaltonen and Nakagawa, and further in view of Leung 653 and Leung 044 (US Pub 2003/0078044). These rejections are respectfully traversed.

Claim 3 recites, among other things, “dividing the broadcast service hierarchy into cells, all the cells of the broadcast service hierarchy employing the same downlink special carrier frequency, ... and transmitting the same content of the real-time broadcast service in the cells of the broadcast service hierarchy wherein the adjacent cells employ different scrambling codes”. Because the broadcast service hierarchy is divided into cells and different cells use different scrambling codes when transmitting the same content of broadcast service, a mobile terminal resides in the broadcast service hierarchy knows which cell it stays with or moves to according to the scrambling code of the cell of the broadcast service hierarchy. Then, the mobile terminal can register its area information in the mobile communication system, and the system can transfer page information of original services to the mobile terminal resides in the broadcast service hierarchy. In this way, there is no need to provide two sets of receivers, i.e., one set of receiver for broadcast service and one set of receiver for original service, in a mobile terminal. Broadcast service and original service can share a set of receiver, thereby decreasing the complexity of the mobile terminal.

In claim 3, the broadcast service hierarchy is divided into cells. Moreover, in claim 3, the same content of the real-time broadcast service is transmitted in the cells of the broadcast service hierarchy wherein the adjacent cells employ different scrambling codes.

Aaltonen at best discloses “a regional broadcast cell is superimposed on area A to K, using frequency f8.” Aaltonen, col. 5, lines 48-50. It does not teach or suggest

dividing the broadcast service hierarchy (corresponding to “a regional broadcast cell”) into cells.

Nakagawa at best discloses “the Spread Spectrum method is applied as another modulation method for each local area broadcasting with a different Spread Spectrum code (a different SS code).” Nakagawa, col. 6, lines 20-22). The local area broadcasting is “different particular programs such as particular local area commercial, election information, and the like” broadcasted in each local broadcasting station. Nakagawa, col. 2, lines 9-13. It does not teach or suggest “transmitting same content in the cells of broadcast service hierarchy using different scrambling codes”.

In view of the foregoing, Applicant submits that claim 3 and its dependent claims 4-13 and 22 defines over the art cited by the Examiner.

Claims 15 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lundby in view of Nakagawa. Claims 17-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lundby in view of Leung 653. Claim 23 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lundby and Nakagawa, and further in view of Leung 653.

Because claims 15-20 and 23 all depend from claim 14, Applicant respectfully submits that claims 15-20 and 23 define over the art cited by the Examiner at least for reasons set forth above regarding claim 14.

Moreover, claim 15 recites “adding a scrambling operation using the downlink special scrambling code in the base station sender of each cell in the original service

hierarchy". All the base stations in the cells are configured with a same scrambling code, i.e., the downlink special scrambling code, for transmitting broadcast service. See page 10, lines 12-13. Claim 15 also recites "the information of the broadcast service hierarchy and that of the original service hierarchy either share the same power amplifier or utilize respective power amplifiers". Nakagawa at best discloses "a frequency synthesizer for synthesizing output from the OFDM modulator 150 and output from the FDMA modulator 142." Nakagawa, col. 12, lines 40-43. Applicant submits that a power amplifier is different from a frequency synthesizer. Therefore, Applicant submits that claim 15 defines over the art cited by the Examiner additionally for this reason.

Claim 17 recites "after the signals pass the RAKE receiver, the signal of original service and the signal of broadcast service are separated, and channel decoding and source decoding of the original service and those of real-time broadcast service are implemented separately". U.S. Patent No. 5,101,501 at best discloses the receivers (40) and (42) are to correlate the IF samples with the proper PN sequence. U.S. Patent No. 5,101,501, col. 9, lines 49-50. Applicant submits that "separating signals of broadcast service and original service" is different from "correlating the IF samples with the proper PN sequence". Therefore, Applicant submits that claim 17 defines over the art cited by the Examiner additionally for this reason. .

Claim 20 recites that "the mobile terminal evaluating the interference value to a service channel caused by the downlink special scrambling code according to the demodulated special broadcast channel data and the information of channel

transmission condition, scrambling code and channel code, and subtracting this interference value from the received signal". In this way, "interference from the added down-link scrambling code (such as scrambling code 1') to other service channels in the cell may be reduced."

Leung 653 at best discloses "each terminal 106 communicates with at least one and possibly more base stations 104 ... depending on whether soft handoff is employed or whether the terminal is designed to receive multiple transmissions from multiple base stations." Leung 653, para. [0043]. U.S. Patent No. 5,101,501 at best discloses diversity combiner and decoder circuitry (48) in a mobile unit telephone for adjusting the timing of the two streams of received signals into alignment and adds them together. See U.S. Patent No. 5,101,501, col. 10, lines 28-31.

Applicant notes that claim 20 is directed to a method for reducing interference, i.e., subtracting from the signals received by the terminal the interference caused by the broadcast service. In contrast, Lundby is for performing soft handoff, i.e., receiving multiple transmissions from multiple base stations by the terminal, and adding the received signals together. Therefore, Applicant submits that claim 20 define over the art cited by the Examiner additionally for this reason.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is

believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

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Respectfully submitted,

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